

Practice: 612 - Tree & Shrub Establishment**Scenario: #1 - Individual tree - hand planting****Scenario Description:**

Tree seedlings will be hand planted in the forested area where few or no forest trees are growing, the existing stand of trees needs underplanting, or the previously planted seedling tree stocking level is below desirable conditions. Wildlife habitat is degraded by loss of forest conditions. This resource concern addressed is degraded plant condition -- and inadequate structure and composition, and inadequate wildlife & fish habitat.

Before Situation:

The stocking level of the forest does not meet the minimum recommended number of trees per acre. The existing condition of the forest stand does not meet the landowners objectives. To be a viable forest additional seedlings need planting. Wildlife habitat is rated poor.

After Situation:

The prescribed number of trees are hand planted on 20 acres, and the objectives of the landowner are met. The forest will provide wildlife habitat, provide a long term ground cover, and capture atmospheric carbon.

Scenario Feature Measure: Area Planted**Scenario Unit: Each****Scenario Typical Size: 6,000****Scenario Cost: \$7,382.72****Scenario Cost/Unit: \$1.23****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	12	\$441.72
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	120	\$1,346.40
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	120	\$2,968.80
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	10	\$425.80
Materials						
Tree, conifer, seedling, containerized, 8 cu. in.	1518	Containerized conifer stock, 8 cubic inches (e.g. 1.5" x 6"). Includes materials and shipping only.	Each	\$0.35	6000	\$2,100.00
Mobilization						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	100	\$100.00

Practice: 612 - Tree & Shrub Establishment**Scenario: #2 - Individual tree - hand planting w/browse protection****Scenario Description:**

Tree seedlings will be hand planted in the forested area where few or no forest trees growing, the existing stand of trees needs underplanting, or the previously planted seedling tree stocking level is below desirable conditions. Seedlings are protected from wildlife browsing. Wildlife habitat is degraded by loss of forest conditions. This resource concern addressed is degraded plant condition -- and inadequate structure and composition, and inadequate wildlife & fish habitat.

Before Situation:

The stocking level does not meet the minimum recommended number of trees per acre and does not meet the landowners objectives. To be a viable forest additional seedlings need planting. Wildlife habitat is rated poor. Wildlife are known to browse tree seedlings in the area causing great damage.

After Situation:

The prescribed number of trees are hand planted, and the objectives of the landowner are met. Seedlings are protected from wildlife browsing by installing some type of protection device. A forest will provide wildlife habitat, provide a long term ground and capture atmospheric carbon.

Scenario Feature Measure: Each Planted Seedling**Scenario Unit: Each****Scenario Typical Size: 6,000****Scenario Cost: \$22,254.00****Scenario Cost/Unit: \$3.71****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	200	\$2,244.00
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	20	\$736.20
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	200	\$4,948.00
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	10	\$425.80
Materials						
Tree, conifer, seedling, containerized, 8 cu. in.	1518	Containerized conifer stock, 8 cubic inches (e.g. 1.5" x 6"). Includes materials and shipping only.	Each	\$0.35	6000	\$2,100.00
Tree shelter, solid tube type, 3-1/4" x 30"	1560	3-1/4" x 30" tree tube for protection from animal damage. Materials only.	Each	\$1.73	6000	\$10,380.00
Stake, bamboo, 3/8" x 36"	1584	3/8" x 36" bamboo stakes to anchor items in place. Includes materials and shipping only.	Each	\$0.11	12000	\$1,320.00
Mobilization						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	100	\$100.00

Practice: 612 - Tree & Shrub Establishment**Scenario: #3 - Medium Density-hand plant Conifer, protect from wildlife****Scenario Description:**

This practice involves planting of tree seedlings after the site has been prepared for seedling growth and establishment. The productivity of the site is good and will handle a medium density planting rate. Newly planted conifer seedlings are protected from browsing by installing open tree tubes. Resource concerns addressed are degraded plant condition -- undesirable plant productivity and health, and inadequate structure and composition and degraded wildlife habitat. Terrain is moderately to steeply sloping, too steep to be planted with a mechanical tree planter so the area is hand planted.

Before Situation:

The land has a little/no tree cover, or is stocked with the wrong tree species. Competing vegetation is a before and after planting concern. Soil condition is degraded due to the loss of the native forest ecosystem (organic matter in top soil depleted). The main resource concern is degraded plant condition and inadequate structure and composition

After Situation:

40 acres of land is established with permanent tree cover that will improve degraded plant condition, reduce soil erosion, establish wildlife habitat, sequester carbon and reduce invasive species presence. Establishing forest vegetation also creates corridors for wildlife movement. Half of planted trees have vexar tubes, or similar, installed to protect from animal damage.

Scenario Feature Measure: Area of Treatment**Scenario Unit:** Acre**Scenario Typical Size:** 40**Scenario Cost:** \$45,010.25**Scenario Cost/Unit:** \$1,125.26**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	41	\$1,509.21
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	404	\$4,532.88
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	404	\$9,994.96
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	40	\$1,703.20
Materials						
Tree, conifer, seedling, bare root, 1-1	1513	Bare root conifer trees, 1-1 (2 years old). Includes materials and shipping only.	Each	\$0.39	12120	\$4,726.80
Tree shelter, solid tube type, 3-1/4" x 30"	1560	3-1/4" x 30" tree tube for protection from animal damage. Materials only.	Each	\$1.73	12120	\$20,967.60
Stakes, bamboo 3/8" x 48"	1585	3/8" x 48" bamboo stakes to anchor items in place. Includes materials and shipping only.	Each	\$0.13	12120	\$1,575.60

Practice: 612 - Tree & Shrub Establishment**Scenario: #4 - Medium Density-hand plant Conifer****Scenario Description:**

This practice involves planting of tree seedlings after the site has been prepared for seedling growth and establishment. The productivity of the site is good and will handle a medium density planting rate. Resource concerns addressed are degraded plant condition -- undesirable plant productivity and health, and inadequate structure and composition and degraded wildlife habitat. Terrain is moderately to steeply sloping, too steep to be planted with a mechanical tree planter so the area is hand planted.

Before Situation:

The land has a little/no tree cover, or is stocked with the wrong tree species. Competing vegetation is a before and after planting concern. Soil condition is degraded due to the loss of the native forest ecosystem (organic matter in top soil depleted). The main resource concerns are degraded plant condition and inadequate structure and composition

After Situation:

40 acres of land is established with permanent tree cover that will improve degraded plant condition, reduce soil erosion, establish wildlife habitat, sequester carbon and reduce invasive species presence. Establishing forest vegetation also creates corridors for wildlife movement.

Scenario Feature Measure: Area of Treatment**Scenario Unit:** Acre**Scenario Typical Size:** 40**Scenario Cost:** \$15,066.61**Scenario Cost/Unit:** \$376.67**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	25	\$920.25
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	243	\$2,726.46
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	16	\$681.28
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	243	\$6,011.82
Materials						
Tree, conifer, seedling, bare root, 1-1	1513	Bare root conifer trees, 1-1 (2 years old). Includes materials and shipping only.	Each	\$0.39	12120	\$4,726.80

Practice: 612 - Tree & Shrub Establishment**Scenario: #5 - Medium Density-Conifer****Scenario Description:**

This practice involves planting of tree seedlings after the site has been prepared for seedling growth and establishment. The productivity of the site is good and will handle a medium density planting rate. The resource concerns addressed is degraded plant condition -- undesirable plant productivity and health, and inadequate structure and composition and degraded wildlife habitat. Terrain is moderately sloping and will be planted with a mechanical tree planter. Smaller size seedlings (1-0) are planted.

Before Situation:

The land has a little or no tree cover, or is stocked with the wrong tree species. Competing vegetation is a before and after planting concern. Soil condition is degraded due to the loss of the native forest ecosystem (organic matter in top soil depleted). Native wildlife habitat is lacking. The main resource concern is degraded plant condition and inadequate structure and composition

After Situation:

40 acres of land is established with permanent tree cover that will improve degraded plant condition, reduce soil erosion, establish wildlife habitat, sequester carbon and reduce invasive species presence. Establishing forest vegetation also creates corridors for wildlife movement. Half of planted trees have vexar tubes, or similar, installed to protect from animal damage.

Scenario Feature Measure: Area of Treatment**Scenario Unit:** Acre**Scenario Typical Size:** 40**Scenario Cost:** \$7,192.89**Scenario Cost/Unit:** \$179.82**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Mechanical tree planter	1600	Mechanical tree planter. Requires a pulling unit of either tractor or small dozer depending upon site conditions. Does not include labor.	Hour	\$6.37	20	\$127.40
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	2	\$73.62
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$66.54	20	\$1,330.80
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	8	\$340.64
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$24.86	20	\$497.20
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74		\$0.00
Materials						
Tree, conifer, seedling, bare root, 1-0	1512	Bare root conifer trees, 1-0 (1 year old). Includes materials and shipping only.	Each	\$0.23	18000	\$4,140.00
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$255.27	2	\$510.54
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	1	\$1.00
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$171.69	1	\$171.69

Practice: 612 - Tree & Shrub Establishment**Scenario: #6 - High Density planting****Scenario Description:**

This practice applies to forestlands that are being actively managed. Tree seedlings are planted after the site has been prepared for seedling establishment and growth. Forest site productivity is high or very high and dense planting is planned. Larger containerized seedlings are planted. Resource concerns addressed are degraded plant condition -- undesirable plant productivity and health, and inadequate structure and composition and degraded wildlife habitat. Terrain conditions allow for mechanical tree planting

Before Situation:

The land lacks forest cover and needs replanting, is stocked with the wrong tree species, or is a nonstocked field. Seedlings selected are appropriate for the site and site conditions. The main resource concerns are degraded plant condition and inadequate structure and composition. Competing vegetation is a before and after planting concern. Soil condition is degraded due to the loss organic matter in top soil. Tree seedlings with larger size root systems are planted to compete with other vegetation.

After Situation:

50 acres of land is established with permanent tree cover that will improve degraded plant condition, establish wildlife habitat, sequester atmospheric carbon. Establishing forest vegetation also creates corridors for wildlife movement. Actions should be planned with competing vegetation concerns.

Scenario Feature Measure: area of treatment

Scenario Unit: Acre

Scenario Typical Size: 50

Scenario Cost: \$23,260.85

Scenario Cost/Unit: \$465.22

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Mechanical tree planter	1600	Mechanical tree planter. Requires a pulling unit of either tractor or small dozer depending upon site conditions. Does not include labor.	Hour	\$6.37	38	\$242.06
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$66.54	38	\$2,528.52
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	4	\$147.24
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74		\$0.00
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	14	\$596.12
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$24.86	38	\$944.68
Materials						
Tree, conifer, seedling, containerized, 10 cu. in.	1519	Containerized conifer stock, 10 cubic inches (approx 6" plug), 1.7" x 6"). Includes materials and shipping only.	Each	\$0.53	34000	\$18,020.00
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$171.69	1	\$171.69
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	100	\$100.00
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$255.27	2	\$510.54

Practice: 612 - Tree & Shrub Establishment**Scenario: #7 - Hardwood Hand Planting-bare root-protected****Scenario Description:**

Improving the hardwood forest setting by hand planting hardwood tree seedlings. Seedlings are protected from deer browsing. The number of trees to plant is lower than establishing a new forest. Resource concerns are degraded plant condition - undesirable productivity and health, and Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation.

Before Situation:

In an existing upland forest the present trees are poor quality, at low stocking levels, or are undesirable species. Existing conditions do not meet landowner objectives of growing high quality trees. Wildlife habitat is poor due to the above described conditions. Resource concerns are degraded plant condition - undesirable productivity and health, and Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation. Prior to planting any needed vegetation control will be conducted first.

After Situation:

The area of treatment is 10 acres. Bare root hardwood seedlings are planted by hand in the best locations for seedling survival. Solid tree tubes are installed to protect seedlings from animal browsing damage. Post planting vegetation control is planned to ensure seedling survival.

Scenario Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: \$6,625.32

Scenario Cost/Unit: \$662.53

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	8	\$294.48
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	8	\$89.76
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	56	\$1,385.44
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	8	\$340.64
Materials						
Tree shelter, solid tube type, 3-1/4" x 30"	1560	3-1/4" x 30" tree tube for protection from animal damage. Materials only.	Each	\$1.73	1500	\$2,595.00
Stakes, wood, 3/4" x 3/4" x 36"	1581	3/4" x 3/4" x 36" wood stakes to fasten items in place. Includes materials only.	Each	\$0.70	1500	\$1,050.00
Tree, hardwood, seedling or transplant, bare root, 6-18"	1509	Bare root hardwood trees 6-18" tall. Includes materials and shipping only.	Each	\$0.58	1500	\$870.00

Practice: 612 - Tree & Shrub Establishment**Scenario: #8 - Hardwood Planting 1 gal pots****Scenario Description:**

Hardwood seedlings (potted) to be planted to reestablish an upland hardwood forest. Planting will be by hand. The resource setting is an area that historically was an upland hardwood forest. Resource concerns are degrade plant condition - undesirable productivity and health, and Inadequate structure and composition; inadequate habitat for fish and wildlife.

Before Situation:

The native forest that has been removed and the land is either row cropped, grazed or hayed or brushy forest. If any upland trees exist they are poor quality tree or undesirable species. Terrain is gently to moderately sloping with soil erosion-sheet and rill occurring.

After Situation:

The area of treatment is 10 acres. Potted/containerized hardwood seedlings are planted by hand. Post vegetation control should be evaluated and conducted if necessary.

Scenario Feature Measure: Area of Treatment**Scenario Unit: Acre****Scenario Typical Size: 10****Scenario Cost: \$18,624.96****Scenario Cost/Unit: \$1,862.50****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	15	\$168.30
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	8	\$294.48
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	8	\$340.64
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	150	\$3,711.00
Materials						
Tree, hardwood, seedling or transplant, potted, 1/2 to 1 gal.	1531	Potted hardwood tree, 1/2 to 1 gal. Includes materials and shipping only.	Each	\$4.50	3000	\$13,500.00
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$255.27	2	\$510.54
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	100	\$100.00

Practice: 612 - Tree & Shrub Establishment**Scenario: #9 - Hardwood Est.-Direct Seeding****Scenario Description:**

Native seed (acorns, nuts, etc) from native tree species are directly planted in the soil. Site preparation is completed (discing to eliminate competing vegetation). The native seed are collected/purchased locally so as to get trees known to be adapted to local conditions. Resource concerns are degraded plant condition, inadequate habitat for fish and wildlife.

Before Situation:

The hardwood forest is degrading. High value species, lumber and wildlife habitat, are not regenerating due to changes in the natural disturbance regime or past harvesting. Unwanted shade tolerant tree species have regenerated and are in the overstory competing with desirable species as well as in the mid and understory where they will eventually out-compete with desirable species.

After Situation:

Seed from native species are collected or purchased and planted at prescribed rates. Site preparation is done prior to direct seeding. Degraded plant condition is on an upward trend and habitat for wildlife will improve.

Scenario Feature Measure: Area of Treatment**Scenario Unit: Acre****Scenario Typical Size: 10****Scenario Cost: \$1,059.91****Scenario Cost/Unit: \$105.99****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$10.44	4	\$41.76
Mechanical nut planter	1601	Mechanical nut planter for direct seeding of trees and shrubs. Requires a pulling unit of either tractor or small dozer depending upon site conditions. Does not include labor.	Hour	\$1.95	4	\$7.80
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$23.21	4	\$92.84
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	6	\$148.44
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$24.86	4	\$99.44
Materials						
Trees and shrubs, seed	1871	Tree or shrub seed, e.g., acorns, to establish trees. Includes materials and shipping only.	Pound	\$4.35	75	\$326.25
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$171.69	2	\$343.38

Practice: 612 - Tree & Shrub Establishment**Scenario: #10 - Shrub Planting****Scenario Description:**

Shrubs are planted to provide a more diverse habitat. Plantings are in either uplands or bottomlands. The site lacks ground level habitat structure and diversity for wildlife. Resource concern is inadequate habitat for fish and wildlife - habitat fragmentation.

Before Situation:

No shrubby vegetation, or very little, is present under the forest overstory. Wildlife species that need shrub cover are not present. An adequate stand of overstory trees is present, but it is a single level, not multi-level.

After Situation:

A 10 acre area is planted with shrubs. Shrubs are not planted over the entire 10 acres. They are planted in groups or motts. The motts, more or less circular in shape, are 50 feet in diameter, with 50 shrubs planted within each mott. 4 motts are planted per acre for a total of 200 shrubs per acre. Motts are randomly established to take advantage of site conditions and shrub species being planted.

Scenario Feature Measure: Area of Treatment**Scenario Unit: Acre****Scenario Typical Size: 10****Scenario Cost: \$2,375.96****Scenario Cost/Unit: \$237.60****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	6	\$220.86
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	10	\$112.20
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	6	\$255.48
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	12	\$296.88
Materials						
Shrub, seedling or transplant, bare root, 6-18"	1506	Bare root hardwood trees 6-18" tall. Includes materials and shipping only.	Each	\$0.44	2000	\$880.00
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$255.27	2	\$510.54
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	100	\$100.00

Practice: 612 - Tree & Shrub Establishment**Scenario: #10 - Plant Small Areas/Quantities****Scenario Description:**

Trees and shrubs are planted to improve habitat and the successional process. Trees and shrubs are planted in an upland or wetland setting. The resource concerns are insufficient cover/shelter and insufficient food for wildlife. Small quantities of trees and shrubs are needed to plant portions of fields to meet habitat and food needs.

Before Situation:

Old fields or other open areas lack sufficient cover/shelter and food for species of concern. There is a lack of native woody cover and the open areas are dominated by forbs and grass.

After Situation:

A 5 acre field will have portions planted to trees and shrubs in a scattered pattern equalling about an acre of planting. Small quantities of trees and shrubs, 200 stems, will need to be ordered. Larger trees and shrubs will be planted to compete better with idle area forbs and tall grasses.

Scenario Feature Measure: Area of Treatment**Scenario Unit: Acre****Scenario Typical Size: 1****Scenario Cost: \$1,657.21****Scenario Cost/Unit: \$1,657.21****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	3	\$110.43
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	8	\$89.76
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	12	\$296.88
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	8	\$340.64
Materials						
Shrub, seedling or transplant, bare root, 36-60"	1508	Bare root shrubs 3 to 5 foot tall. Includes materials and shipping only.	Each	\$1.61	200	\$322.00
Tree, hardwood, seedling or transplant, bare root, 36-60"	1511	Bare root hardwood trees 3 to 5 foot tall. Includes materials and shipping only.	Each	\$1.59	250	\$397.50
Mobilization						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.00	100	\$100.00

Practice: 612 - Tree & Shrub Establishment**Scenario: #12 - Shrub Planting, Small and Urban Farms****Scenario Description:**

Shrubs are planted to provide a more diverse habitat and to enhance cover, food (fruit, nectar, pollen, nesting sites) for specific wildlife needs on small and urban farms for shrub dependent wildlife. Shrub planting density is variable depending on the objective (e.g., protective cover, food (e.g., fruit, nectar, pollen). Resource concerns are Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation, inadequate habitat for fish and wildlife - cover, inadequate habitat for fish and wildlife - food.

Before Situation:

In existing small or urban farm, there is insufficient food, cover and nesting opportunity for species that use shrublands for all or a significant portion of their life cycle. Existing conditions do not meet landowner objectives of creating cover, food, or nesting sites for desired shrubland wildlife. Resource concerns are Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation, inadequate habitat for fish and wildlife - cover, inadequate habitat for fish and wildlife - food

After Situation:

In existing small or urban farm, there is now sufficient food, cover and nesting opportunity for species that use shrubs for all or a significant portion of their life cycle. Existing conditions now meet the landowner's objectives of creating cover, food, or nesting sites for desired shrubland wildlife. Resource concerns are now addressed for Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation, inadequate habitat for fish and wildlife - cover, inadequate habitat for fish and wildlife - food

Scenario Feature Measure: Area of Treatment**Scenario Unit:** Each**Scenario Typical Size:** 200**Scenario Cost:** \$1,369.80**Scenario Cost/Unit:** \$6.85**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	10	\$112.20
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	2	\$73.62
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	1	\$42.58
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	10	\$247.40
Materials						
Shrub, seedling or transplant, potted, 1/2 to 1 gal.	1526	Potted shrub, 1/2 to 1 gal. Includes materials and shipping only.	Each	\$4.47	200	\$894.00

Practice: 612 - Tree & Shrub Establishment**Scenario: #11 - Shrub Bare Root Hand Planting In Sod Grasses****Scenario Description:**

This scenario is to enhance cover, food (fruit, nectar, pollen, nesting sites) for specific wildlife needs on land converted to agriculture and currently in grass sod for shrub dependent wildlife. Shrub planting density is variable depending on the objective (e.g., protective cover, food (e.g., fruit, nectar, pollen). Resource concerns are Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation, inadequate habitat for fish and wildlife - cover, inadequate habitat for fish and wildlife - food. This scenario is only to be used for hand planting in sod where sod will choke out bare root seedlings; this scenario is not to be used for dibble- or mechanical-planting of shrubs in grassland, or woodland or existing cropland where grass groundcover is not a problem.

Before Situation:

In existing open grassland, there is insufficient food, cover and nesting opportunity for species that use shrublands for all or a significant portion of their life cycle. Existing conditions do not meet landowner objectives of creating cover, food, or nesting sites for desired shrubland wildlife. Resource concerns are Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation, inadequate habitat for fish and wildlife - cover, inadequate habitat for fish and wildlife - food.

After Situation:

The area of treatment is 1 acre. Bare root hardwood shrub seedlings are planted by hand on a 6 x 6 spacing in a sod grass field by hand. Will require removal of sod in a 2-foot circle prior to planting bareroot seedlings to achieve adequate survival. Installation of post-planting practice mulching or other vegetation control is needed to enhance seedling survival.

Scenario Feature Measure:**Scenario Unit:** Each**Scenario Typical Size:** 1,200**Scenario Cost:** \$8,502.30**Scenario Cost/Unit:** \$7.09**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.81	30	\$1,104.30
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hour	\$11.22	120	\$1,346.40
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$42.58	60	\$2,554.80
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$24.74	120	\$2,968.80
Materials						
Shrub, seedling or transplant, bare root, 6-18"	1506	Bare root hardwood trees 6-18" tall. Includes materials and shipping only.	Each	\$0.44	1200	\$528.00